

Remarks

Claims 1-10 and 15-22 are pending after the amendment.

Rejections under 35 U.S.C. § 102

Claims 1-7 and 19-21 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2002/0137337 to Lu et al. This rejection is respectfully traversed.

The standards utilized in a section 102 rejection are well known. For a prior art reference to support a section 102 rejection, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). In addition, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

To support a section 102 rejection, Lu would have to disclose all features of the claimed inventions. Applicant respectfully submits that all elements of claim 1 are not disclosed by Lu. The Office attempts to equate the sacrificial layer (108) of Lu with the release layer as claimed in claim 1. Applicant respectfully submits that the sacrificial layer (108) as taught by Lu is a material with a high CMP rate of removal compared to the polish stop layer (106). Lu further teaches that the sacrificial layer is removed by two CMP operations. The Examiner is respectfully directed to paragraph 0020 of Lu which states,

Processing then continues to chemically-mechanically polish the excess copper layer 124 and 116, liner/barrier 114, and sacrificial layer 108 over the field to form the copper interconnect, as shown in FIG. 2F. Sacrificial layer 108 also provides an advantage during this CMP step. A two-step CMP process is used to accomplish this task: the first CMP step remove the excess Cu on the field and stop on the barrier layer 114. The second

CMP step removes barrier 114, along with sacrificial layer 108 and stops at the polish stop layer 106. Additional metal interconnect layers may then be formed followed by packaging.

In contrast, the release layer of the claimed invention is removable through a chemical process, where the release layer is dissolved away. The Office then suggests that CMP is a chemical process and further suggests that the sacrificial layer of Lu is chemically dissolved. Applicant submits that, as well known to those skilled in the art, CMP is mainly a mechanical process that uses slurry and abrasives to facilitate material removal. In addition, Applicant submits that the teachings of Lu are incongruous with the Office's interpretation of CMP. Lu teaches that materials, such as silicon dioxide, may be used as a sacrificial layer. (See Lu, paragraph 14) If the CMP process as utilized by Lu was a chemical dissolving process as suggested by the Office (a proposition with which Applicant disagrees), then the sacrificial layer (e.g., silicon dioxide) of Lu would be dissolved by a chemical that presumably would be capable of dissolving silicon dioxide. Consequently, the dielectric layer 102 (e.g., silicon dioxide) of Lu would be dissolved away as well. As a result, Applicant submits that the Office's suggestions render the teachings of Lu ineffective for its purpose and therefore is incongruous with the teachings of Lu. Therefore, Applicant respectfully submits that the CMP process as utilized by Lu is a mainly mechanical process where the sacrificial layer is polished away. Therefore, Applicant submits that Lu does not disclose the release layer as claimed in the combination. Therefore, Lu does not disclose each and every element of claim 1 as is required in a section 102 rejection.

With respect to claim 19, Applicant submits that Lu does not disclose each and every element as is required in a section 102 rejection. The Office attempts to equate the sacrificial layer (108) of Lu with the photosensitive release layer as claimed in claim 19. As discussed above, Applicant respectfully submits that the sacrificial layer (108) as taught by Lu is useful

in a mechanical process such as CMP. Therefore, Applicant submits that the sacrificial layer (108) of Lu is not a photosensitive release layer of the claimed inventions. In addition, Applicant submits that Lu does not disclose, teach, or suggest that its sacrificial layer is photosensitive. Therefore, Lu does not disclose all features of claim 19 as is required in a section 102 rejection. Consequently, Applicant respectfully requests that the section 102 rejection be withdrawn.

With regard to the dependent claims, the Applicant submits that the cited prior art reference does not disclose all the elements of the dependent claims and traverse the rejection of those claims. In addition, the dependent claims are submitted to be patentable for at least the same reasons as independent claims are patentable over the cited art of record. The Office indicated that claims 8-10, 16-18, and 22 are not rejected over the prior art.

Applicants respectfully submit that all of the pending claims are in condition for allowance. Accordingly, a notice of allowance is respectfully requested. If the Examiner has any questions concerning the present amendment, the Examiner is kindly requested to contact the undersigned at (408) 749-6900, ext. 6911. If any fees are due in connection with filing this amendment, the Commissioner is authorized to charge Deposit Account No. 50-0805 (Order No. NOVEP008).

Respectfully submitted,
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